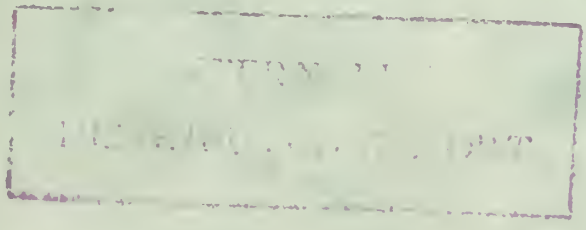
# THE NAVY INDUSTRIAL FUND

Edwin Richard Wicklander



REPORT

# NAVAL POSTGRADUATE SCHOOL

## Monterey, California

# THESIS

THE NAVY INDUSTRIAL FUND

by

Edwin Richard Wicklander, Jr.

March 1976

Thesis Advisor: Leslie Darbyshire

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The Navy Industrial Fund is a revolving fund used to provide working capital for industrial-commercial type activities in the Department of Navy. The first NIF activity was the Defense Printing Service which was converted to NIF operations on 1 November 1949. At the present time there are 84 NIF activities.

The author researched the background, management, and operation of the fund activities. The following questions are

encompassed in this thesis: How did the NIF originate? Why did it come into existence? How is it managed? How well does it work?

In conclusion, the strengths of the NIF as well as continuing problems are discussed.

# The Navy Industrial Fund

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ABSTRACT

The Navy Industrial Fund is a revolving fund used to provide working capital for industrial-commercial type activities in the Department of the Navy. The first NIF activity was the Defense Printing Service which was converted to NIF operations on 1 November 1949. At the present time there are 84 NIF activities.

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# I. INTRODUCTION

In terms of size and diversity, the Navy Industrial Fund (NIF) is a significant industrial complex. In total revenue (5,209 million) [Ref. 1] it would have ranked twenty-fourth behind Goodyear Tire and Rubber Company in 1975 [Ref. 2]. The Navy Industrial Fund presently provides funds for shipyards, printing stations, ordnance plants, aircraft overhaul and repair facilities, public works centers, research, test development and engineering activities, Naval weapons facilities and ammunition depots, and Military Sealift Command. As a point of comparison, total Navy expenditures for Fiscal Year 1976 are estimated to be 30.1 billion [Ref. 3].

The author's next duty station will be a NIF activity. The purpose of this thesis is then to investigate the Navy Industrial Fund, to learn its origin, why it came into existence, how it is managed, how it operates, and how well it works.

The author's research on the Navy Industrial Fund included: a review of current articles, an examination of books and government documents pertaining to NIF, and interviews with members of the Comptroller's staff at Mare Island Naval Shipyard and the Public Works Center, Oakland, California, and several interviews by telephone with personnel at the Navy Comptroller's Office, Washington, D. C.

Appointments for interviews were made a week or so prior to visiting each activity. Sufficient time was alloted by

each interviewee to give the author a background of how the Navy Industrial Fund operated at his respective activity and to answer specific questions posed by the author. The interviewees were also very cooperative in providing the most recent directives and instructions pertaining to the Navy Industrial Fund. The interviews further benefited the author by enabling him to "see" the operation of the Navy Industrial Fund through the eyes of people who were directly involved with it.

## II. THE NAVY INDUSTRIAL FUND CONCEPT

This chapter discusses the concept of the Navy Industrial Fund, as well as an overview of how it works.

The word "fund" has a special technical meaning in governmental accounting:

> A fund is defined as an independent fiscal and accounting entity with a self-balancing set of accounts recording cash and/or other resources together with all related liabilities, obligations, reserves, and equities which are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions, or limitations. [Ref. 4]

This definition notes a dual meaning of the word fund. A fund is an accounting entity. It is also a fiscal entity, created by law and governed by regulations.

The Navy Industrial Fund is a "revolving fund," or a "working capital fund." It is used to provide the working capital necessary to finance the operations of Navy industrial and commercial type activities. The Navy considers industrial activities to be:

> ...those activities engaged in production or construction, modification, conversion, alteration, renovation, or rehabilitation, overhaul and maintenance of ships, aircraft, guided missiles, other weapons, ammunition, vehicles, and equipment of all kinds, and other military operating supplies, including components and spare parts of such items. [Ref. 5]

Commercial-type activities are defined to be:

> ...those activities that perform or provide such services as transportation and port terminal services, base services, printing, research, development, and evaluation, engineering and logistics support, and automatic data processing services. [Ref. 5]

As a funding medium, the industrial fund simplifies the financing of business operations where the mission is to "sell" goods or services to customers within the Naval establishment. The fund is used to finance one complete cycle of operations at the NIF activity. It is used to pay the costs of providing goods or services pending reimbursement by the customer. A "customer" may be: a Systems Command, or any department thereof, an Operating Force Command, other government units, or selected private parties.

The first NIF activity was the Defense Printing Service which was converted to NIF operations on November 1, 1949. At the present time there are 84 NIF activities (See Table 1).

Industrial Funds in the Department of Defense were authorized by the National Security Act Amendments of 1949. During the Senate Armed Services Committee hearings on those amendments it was stated that studies made prior to 1949 of the industrial and commercial activities of the military departments had shown a lack of adequate cost accounting in such activities and had indicated the need for some means of accurate, yet simple, cost determination. While appropriation accounting appeared satisfactory for purely administrative or military-type functions, it was not felt to be adequate or desirable for industrial and commercial type activities.

Under the then existing federal budget and appropriation structure, projects or programs undertaken by military activities required financing from several individual appropriations. Generally, the appropriations were controlled and accounted for by organizational divisions which were not only

TABLE 1

NAVY INDUSTRIAL FUND ACTIVITIES AS OF 27 FEBRUARY 1975

| Activities | Number |
|---|---|
| Ordnance Plants | 14 |
| Shipyards | 8 |
| Research Activities | 15 |
| Printing Plants | 32 |
| Base Services | 8 |
| Aircraft Maintenance Facilities | 6 |
| Military Sealift Command | 1 |
| | 84 |

Source: U.S. Department of the Navy, Office of the Comptroller

widely scattered geographically but were also unrelated except with regard to administrative purposes. This was felt to be inefficient and uneconomical. A working capital fund eliminated the need for several appropriations to finance the daily operations of an activity [Ref. 6].

An industrial or commercial activity financed by a working capital fund and using standard, accepted, and proven commercial practices of cost accounting would lead to greater efficiency, economy, and accountability. The management of each activity would:

1. become directly responsible for accounting for the funds and the costing of the operations.
2. be encouraged to reduce operating costs.
3. have the opportunity to compare costs and develop a spirit of cost competition with activities of a similar nature. [Ref. 6]

The concept of industrial funds and the intent of Congress in authorizing them can best be stated by the following excerpts from Senate Report No. 366 (May 12, 1949, on S. 1832).

> A report of the Naval Affairs Committee of the House in 1945 pointed out the lack of adequate cost accounting in this type of activity. It stressed the necessity for developing some means for ascertaining the cost of work performed. In administrating appropriated funds, the contemporary allotment type of control direct from appropriations can be developed to a satisfactory point in administrative or strictly military type functions. However, such an administrative type of management and financial control fails utterly in contributing to the proper management of industrial and commercial type activities, and, without complete duplication of cost systems, cannot provide information as to the cost of work performed. The problem can be solved in a manner that fits into the framework of the performance-type budget. An operating or working capital fund can

be established for the operations of such activities, eliminating entirely the many sources of funds now used to finance their day to day operations. In effect, working capital would be available to those who actually run or administer any industrial type or commercial type activity performing common services--making those officials fully responsible for a direct accounting for the money they spend, the costing of each job, and the most economical method of accomplishing the work. All costs of the operation of this industrial type or commercial type activity would be paid from the working capital fund, using standard, accepted, and approved commercial practices for the distribution of direct and indirect costs of jobs in process. The activity which places a work order....would establish proper commitments and obligations against money appropriated to it--generally in the same manner as would be followed if this order were placed for the work to be done by a private concern. The industrial plant would enter the order and distribute the work in the plant by its own job orders--fundamentally sound procedure. When the work is completed and the cost of the job ascertained, the plant will invoice or bill the cost to the ordering military agency.....

Accounting and reporting systems would be simplified and the cost of work performed would become chargeable directly to the budget program as it was presented and justified before the Congress. The amount of work performed in such industrial type and commercial type activities under the working capital concept would be directly controlled by orders placed within the limits of money appropriated for such work. Subsection 405(a) of Security Acts Amendments, 1949, contains language which would authorize and direct the Secretary of Defense immediately to begin this major needed improvement for the business-like operation of the military establishment. [Ref. 7]

## III. BACKGROUND

### A. LEGAL BACKGROUND

The establishment of working capital funds in the Department of Defense was authorized by Public Law 216, Eighty-First Congress, Section 405 (The National Security Act Amendments of 1949). [Ref. 8] The section covering working capital funds (Section 405) has been incorporated into the United States Code as 10 USC 2208, Working Capital Funds. Paragraph 2208 provides the broad general guidelines for the establishment and operation of working capital funds. Section 2208(a) of Title 10, USC, allows the Secretary of Defense to establish such funds in the Department of Defense to:

> (1) finance inventories of such supplies as he may designate; and
>
> (2) provide working capital for such industrial type activities that provide common services within or among departments and agencies of the Department of Defense as he may designate.

Section 2208(d) authorizes the Secretary of Defense to provide capital for these funds by capitalizing inventories (and by appropriations, if necessary). Section 2208(f) prohibits customers of working-capital funds from buying goods or servcies for which they do not have specific funds or appropriations available. Section 2208(i) requires that "reports annually shall be made to the President and to Congress on the condition and operation of working capital funds established under this section." [Ref. 9] It is further provided in 10

U.S.C 2208 (h) that "the Secretary of Defense shall prescribe regulations governing the operation of activities and use of inventories authorized by this section." [Ref. 9]

B. REGULATORY BACKGROUND

The detailed guidance concerning industrial funds is contained in Department of Defense Directive 7410.4, "Regulations Governing Industrial Fund Operations." DOD Directive 7410.4 provides regulations covering the five established working funds, known as "Defense Industrial Fund," "Army Industrial Fund," "Navy Industrial Fund," "Marine Corps Industrial Fund," and "Air Force Industrial Fund."

> Each industrial fund consists of the undisbursed balance with the treasury, accounts receivable, inventories of materials, supplies, work in process, and all other assets pertaining to or acquired in the operations of the activities financed under the fund, subject to all liabilities incurred in connection with such operations. [Ref. 10]

Part V.A of DOD Directive 7410.4 states that industrial funds are designed to:

1. Provide a more effective means for controlling the costs of goods and services required to be produced or furnished by industrial and commercial type activities, and a more effective and flexible means for financing, budgeting and accounting for the costs thereof;

2. Create and recognize contractual relationships between industrial and commercial-type activities and those activities which budget for and order the end-product or services, in order to provide management advantages and incentives for efficiency and economy;

3. Provide to managers of commercial and industrial type activities the financial authority and

flexibility required to procure and use manpower, materials and other resources effectively;

4. Encourage more cross-servicing among the military departments and among their operating agencies, with the aim of obtaining more economical use of facilities;

5. Support the performance budgeting concept by facilitating budgeting and reporting for the costs of end products, and thus underlining the cost consequences of decision making, including choices between alternatives in such terms.

Part V.B further lists 12 specific objectives, which are:

1. To furnish managers of industrial and commercial-type activities with management tools comparable to those utilized by efficient private enterprises engaged in similar types of activities;

2. To provide an incentive for managers of industrial fund activities to improve cost estimating and cost control through use of cost standards by requiring a contractual relationship between producer and ordering agencies;

3. Require alert, forward looking financial planning at industrial and commercial-type activities by making them dependent financially on reimbursements received for goods and services furnished in fulfilling orders from customers;

4. Impel producers of goods and services to coordinate labor forces and inventories with workload generated. It is recognized that statutory and executive restrictions on the level of employment and the additions or reductions of personnel frequently limit flexibility and make difficult effective control over employment in relation to workload. However, producers must avoid the tendency to maintain a labor force without regard to workload levels, taking into consideration the balancing of skills to meet the anticipated workload;

5. To coordinate the financial aspects of detailed estimation and planning for job performance in terms of material requirements and labor operations, production scheduling and control, and procurement and inventory control, with budgeting and cost control;

6. To establish and use realistic cost standards as targets rather than detailed cost limitations;

7. Require ordering agencies to budget, control and account for the cost of all goods and services ordered rather than allow them to obtain goods and services free. Conversely at the industrial fund activity the objective shall be pursued of reducing the amount of goods and services not paid for from the industrial fund. Taken together these two statements establish the objective that the industrial funded activity will neither furnish nor receive "free" goods and services, nor will the activity enter into arrangements to "offset" services received and services furnished. This requirement is designed to instill in the officials of these agencies a greater sense of responsibility and self restraint in limiting their orders, and balancing the costs of specific goods and services to be ordered against the benefits and advantages of their procurement, especially in the light of alternative or competing demands;

8. To place ordering agencies in the position of critic of purchase prices (i.e., costs of performing activities) as well as quality and delivery speed of the goods and services ordered in consideration of relative costs of similar performing activities and outside agencies;

9. Provide meaningful bills to ordering agencies, clearly relating the goods and services furnished by a performing activity to the charges rendered, causing the ordering agencies to assess their procurement practices and specifications in full awareness of the costs involved;

10. Enable ordering agencies to budget and account on an "end-product" basis (the same as when buying from commercial contractors), simplifying budget presentations, budgeting control, and accounting procedures for both producers and ordering agencies;

11. To establish, wherever feasible, predetermined prices (tariff schedules, price lists, fixed

price orders) for goods and services furnished by industrial fund activities, thus setting standard prices on performance and enabling ordering agencies to plan and budget more confidently;

12. To encourage management of ordering agencies to improve program planning and scheduling, in response to producers efforts to negotiate for orders as far in advance as possible.

Directive 7410.4 specifies who may be customers of an industrial fund:

1. Operating force commands, or mission units thereof, operation agencies, commodity commands, inventory control points, weapons system or project managers, or any Department of Defense components having missions and responsibilities separate from management and operation of the industrial fund activity;

2. Military personnel, private individuals and concerns, and other government agencies as authorized. [Ref. 10]

The directive clearly states that the management of each industrial fund activity shall be held responsible for the control of performance costs in line with customers' orders or approved price schedules. It further specifies that a management agency or command (called an "administering office" in the Navy Comptroller's Manual) shall be designated responsible for the effective management of each industrial fund activity. It authorizes local management to incur obligations and costs "under the direction and supervision of the agency having direct command and management control." [Ref. 10] The author of this paper feels this is an interesting point, because in many cases the management agency is also the prime customer. Table 2 lists the management agencies and the industrial activities for which each agency is responsible. [Ref. 11]

TABLE 2

| INDUSTRIAL FUND ACTIVITY | MANAGEMENT AGENCY |
|---|---|
| Naval Research Laboratory, Washington, D.C. | ONR |
| Naval Avionics Facility, Indianapolis, IN | NAVAIR |
| Naval Air Rework Facility, Alameda, CA | |
| Naval Air Rework Facility, North Island, San Diego, CA | |
| Naval Air Rework Facility, Norfolk, VA | |
| Naval Air Rework Facility, Cherry Point, NC | |
| Naval Air Rework Facility, Jacksonville, FL | |
| Naval Air Rework Facility, Pensacola, FL | |
| Naval Engineering Center, Lakehurst, NJ | |
| Naval Air Test Center, Patuxent River, MD | |
| Naval Air Propulsion Test Center, Trenton, NJ | |
| Naval Missile Center, Point Magu, CA | |
| Navy Publications and Printing Service (32 Printing Plants) | NAVSUP |
| Philadelphia Naval Shipyard, Philadelphia, PA | NAVSEA |
| Portsmouth Naval Shipyard, Portsmouth, NH | |
| Norfolk Naval Shipyard, Portsmouth, VA | |
| Charleston Naval Shipyard, Charleston, SC | |
| Long Beach Naval Shipyard, Long Beach, CA | |
| Mare Island Naval Shipyard, Vallejo, CA | |
| Puget Sound Naval Shipyard, Bremerton, WA | |
| Pearl Harbor Naval Shipyard, Pearl Harbor, HI | |
| Naval Ordnance Station, Indian Head, MD | |
| Naval Ordnance Station, Louisville, KY | |
| Naval Weapons Station, Yorktown, VA | |
| Naval Torpedo Station, Keyport, WA | |
| Naval Weapons Station, Charleston, SC | |
| Naval Weapons Station, Concord, CA | |
| Naval Ammunition Depot, Crane, IN | |
| Naval Ammunition Depot, Earle, NJ | |
| Naval Ammunition Depot, Hawthorne, NV | |
| Naval Ammunition Depot, McAlester, OK | |
| Naval Weapons Station, Seal Beach, CA | |
| Naval Ship Missile Systems Engineering Station Port Hueneme, CA | |
| Public Works Center, Norfolk, VA | NAVFAC |
| Public Works Center, Pearl Harbor, HI | |
| Public Works Center, Guam, .I. | |
| Public Works Center, Subic Bay, Luzon, R.O.P. | |
| Public Works Center, San Diego, CA | |
| Public Works Center, Pensacola, FL | |
| Public Works Center, Great Lakes, IL | |
| Public Works Center, San Francisco, CA | |
| Civil Engineering Laboratory, Naval Construction Battalion Center, Port Hueneme, CA | |
| Polaris Missile Facility, Atlantic, Charleston, SC | SSPO |
| Strategic Weapons Facility, Pacific, Silverdale, WA | |

TABLE 3 (Continued)

| | |
|---|---|
| Military Sealift Command | MSC |
| Naval Ship Research and Development Center, Washington, DC | CNM |
| Naval Coastal Systems Laboratory, Panama City, FL | |
| Naval Weapons Center, China Lake, CA | |
| Naval Air Development Center, Johnsville, Warminister, PA | |
| Naval Underseas Research and Development Center, San Diego, CA | |
| Naval Electronics Laboratory Center, San Diego, CA | |
| Naval Surface Weapons Center, Silver Spring, MD | |
| Naval Underwater Systems Center, Newport, RI | |

The directive provides that the costs of maintaining unutilized or underutilized plant and facilities at industrial fund activities shall be provided by appropriated funds obtained from the management agencies. It further stipulates that the retention of such facilities must be specifically approved as being essential in support of mobilization preparedness.

The directive requires that reimbursement for the cost of work and service will normally be made on a progress payment basis. It specifies that billings and collections for progress payments will be accomplished at least monthly.

For the non-Department of Defense customers (who represent less than 0.5 percent of the customer order dollars in the 1977 budget [Ref. 1]), the directive requires that they "shall be charged at prices or rates determined to secure reimbursement for total costs, including unfunded costs, or the fair market value of the product or service, whichever is higher." [Ref. 10] Public Works Centers only add a surcharge to recover unfunded costs; the fair market value is not considered or calculated. Public Works Centers can provide goods or services to non-Department of Defense customers only when such goods or services are not available locally in the civilian community. Examples of goods and services provided to non-Department of Defense customers are:

1. the utilities and building rental fee of a civilian bank branch located on a Navy base;

2. utilities provided to a contractor doing work on a Navy base;

3. the use of a Public Works Center equipment (such as a crane) by a contractor doing work on a Navy base.

The directive gives general guidance concerning cost accounting. It specifies that each type of industrial fund activity shall have a cost accounting system tailor-made for its operations.

The directive requires that each activity prepare an annual operating budget.

C. INDUSTRIAL FUND CHARTER

In order for an industrial or commercial type activity to be financed from an industrial fund and be designated on industrial fund activity, it must obtain a "charter." This charter must be signed by the Secretary of the Military Department or by the Director of a Defense Agency, whichever is appropriate, and must then be submitted to the Assistant Secretary of Defense (Comptroller) for approval. The charter will govern the operations of the activity. It is prepared in accordance with the Department of Defense Directive 7410.4, "Regulations Governing Industrial Fund Operations." [Ref. 10] Each charter must include the following information:

1. Name and location of the activity(ies);

2. The name of the operating agency within the Department of Defense directly responsible for management of the activity(ies);

3. A brief description of the functions of the activity together with the nature of its products or services;

4. A statement of any specific exceptions to the above regulations.

The proposed charter must also be accompanied by supportive information. This information must include:

1. Estimated working capital requirements together with complete justification for all estimates and an explanation of the basis on which the estimates were calculated.

2. Investments in inventories of supplies and materials.

3. Expected volume of business by type and character.

4. The source of reimbursements by customer agency and appropriation, or other source, for the current and ensuing fiscal years.

5. Estimates of goods or services to be furnished by non-Department of Defense agencies together with the basis for which these services will be charged.

Department of Defense components will review industrial fund operations independently of the management command or agency and as of 30 September each year assure the Assistant Secretary of Defense (Comptroller) that charters and the supplemental provisions are current.

D. POLICY AND GUIDANCE

The financial management policy as well as procedures common to all Navy and Marine Corps Industrial Fund activities are contained in Chapter 8 of the Navy Comptroller Manual. In addition, a handbook for each activity group (for example, Navy Industrial Fund Handbook for Naval Shipyards, NAVSO P-1242) is issued and distributed by the Comptroller of the Navy. Additional policy and guidance instructions are promulgated by the management agencies for the industrial fund activities under their control.

## IV. NAVY INDUSTRIAL FUND MANAGEMENT

### A. COST ACCOUNTING

Cost accounting can be defined as a "process of recording transactions in such a manner that costs may be determined by department, function, end-item, or any other category desired." [Ref. 4] At all industrial-commercial activities, cost accounting is necessary to determine product or service cost in order to:

1. Bill the customer.
2. Compute fixed price variances.
3. Assign functional or natural costs by cost center for management purposes.

According to the Navy Comptroller Manual,

> The purpose of a cost accounting system is to provide meaningful information that will facilitate intelligent and efficient administration of an activity including the administration of its internal operations and conduct of its external relationships. Cost accounting is not the end in itself but rather a means to an end and is worthwhile as far as it is useful in the administration of an activity. Cost accounting is designed to furnish management with the information for:
>
> (1) controlling the use of resources;
>
> (2) controlling cost performance at all levels;
>
> (3) developing standards, or norms, in terms of man-hours and costs, for the accomplishment of various work programs in order to improve the accuracy determining resource needs and allocation, accumulated costs, and assist in the determination of personnel requirements and workload distribution;

(4) developing or revising policies, plans, methods, and practices for the purpose of improving operations;

(5) preparing budget estimates. [Ref. 5]

The particular operations of any industrial-commercial activity determines the type of cost accounting system it employs. The two basic accounting systems used are job order costing and process costing. Either or both may be applicable to an activity. For example, both methods are used in a shipyard.

The job order costs system keeps the costs of various jobs, orders or contracts separate during their manufacture or construction. This method is applicable when the unit of costing is based on a specific order covering an item or group of items produced. It presupposes that the costs involved can be identified to the specific job. Indeed, the system is based on the issuance of a job order covering the direct work to be accomplished. The job order must, as a minimum, identify the customer order and the units or services to be produced [Ref. 12]. Figure 1 illustrates how overhead costs are distributed in a "job order system" under Navy Industrial Fund activities.

The process cost system is used when units are not separately distinguishable from one another during one or more processes of manufacture. The process cost method consists of computing an average cost of production by dividing the total manufacturing cost by the total number of units produced in the factory over the specified unit of time [Ref. 12]. The gas manufacturing center in a shipyard is an example where process costing is used [Ref. 13].

# JOB ORDER COSTS UNDER NAVY INDUSTRIAL FUND

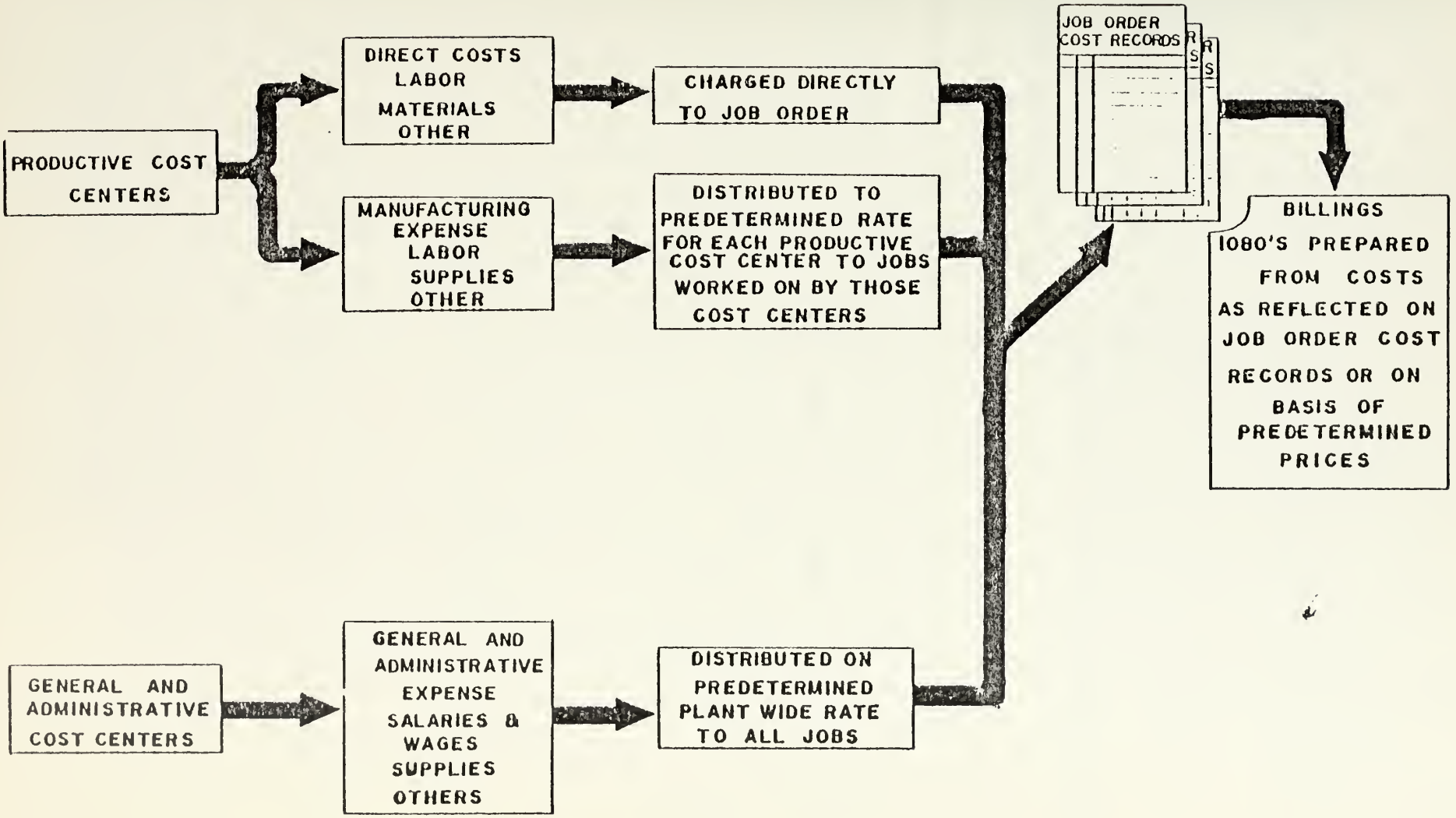



Figure 1

The "cost center concept" is central to the idea of cost accounting. A cost center is an administrative unit selected for the purpose of budgeting, accumulating, and controlling relating costs. A cost center has three important characteristics:

1. Each cost center consists of a natural grouping of men, machines, methods, processes, operations;

2. Each cost center is made up of elements having common cost characteristics;

3. Each cost center has a single manager to whom can be assigned total responsibility and accountability. [Ref. 14]

The reasons for using a cost center are quite practical. The single manager aspect provides the command with one man to whom the responsibility for the men, money, and resources of a particular functional area is assigned. The Cost Center Manager, as he is called, is responsible for the budgeting, cost control and proper administration of his cost center. The structure of the cost center provides for an accumulation of costs in such a manner that the Cost Center Manager can in fact control his center and not be held responsible for costs he cannot control.

At Navy Industrial Fund activities there are two kinds of cost centers: direct and general. A direct cost center is one in which the major labor effort can be identified and costed directly to specific job orders. A general cost center is one which is principally engaged in performing overall support services to the entire activity.

The cost or expense incurred in the cost centers are of two types--direct and indirect (overhead). Direct costs are "those elements of productive costs which can be identified without undue effort to specific job orders assigned to accomplish a project, task, product or service for customers, or to a process under a process cost system." [Ref. 5] Indirect (overhead) costs are expenses which cannot be directly identified with and charged to a specific job order.

The Navy Comptroller Manual further subdivides overhead into two distinct types, production/indirect expenses and general expense. Production/indirect expense is overhead associated with a direct cost center. These are costs incurred to support all direct work in a cost center which cannot be tied to a specific job order. The wages of a shop foreman who oversees many workers doing work related to several job orders would be classified as a production/indirect expense. The wages of a worker doing work related to one job order would be direct costs. General expense (General Overhead) refers to the overhead generated in general cost centers. It is the overhead expense incurred to support the overall mission of the activity. The expenses accumulated in the planning department of a shipyard, for example, would be general overhead.

Since by definition direct costs are clearly identifiable with a specific job order, they are easily understood. The question arises, however, as to what method one should use to apply a "fair share" of overhead to each job order. This is accomplished by applying overhead to each job order on the basis of a predetermined overhead "rate" based on direct labor

hours, direct labor costs, machine hours, or other appropriate bases.

> In principle, the accountant determines a causal relationship between two factors, such as the direct labor hours and overhead, and uses this relationship as the means of charging factory overhead to jobs. [Ref. 12]

At Navy Industrial Fund activities, both types of overhead expense are reduced to rates expressed as functions of direct labor hours. The rates then indicate the expense of providing overhead support per man-hour of direct labor.

A production/indirect overhead rate is computed for each direct cost center. It is determined by dividing the total estimated overhead expense for the year by the estimated direct labor hours to be worked by civilian and military employees. This rate will be different for each direct cost center.

A single general overhead rate is developed for all the general cost centers combined. It is computed by totalling the estimated overhead expenses of all the general cost centers and dividing this figure by the total of direct labor hours to be worked throughout the entire activity, in both direct and general cost centers.

Overhead rates are calculated prior to the beginning of each fiscal year. The rate is set with all known factors considered so as to absorb expected overhead during the current accounting period, including previous periods over or under absorbed overhead. See Figure 2. Rates used to be revised in the past whenever necessary in order to permit prices to

# APPLICATION OF OVERHEAD

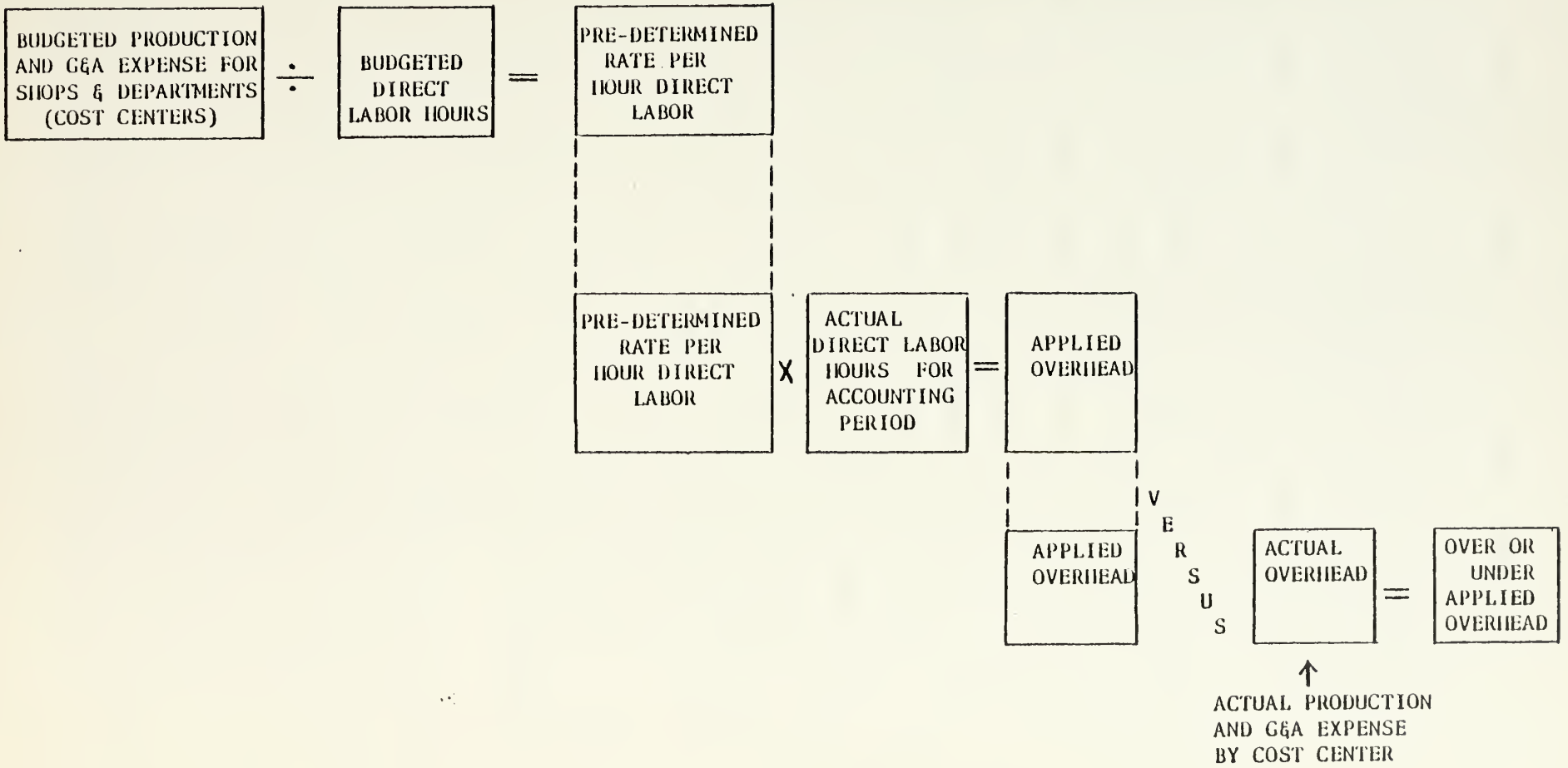



Figure 2

be adjusted at any time during the current accounting period, based on updated estimates of overhead expenses. The rate stabilization program, which will be discussed later, now prohibits this practice. The overhead rates calculated for each fiscal year must remain in effect for the whole fiscal year.

We see then that for each direct labor hour of work on a given job order, there are three costs assigned: the wage rate of the man performing the labor, the production/indirect overhead rate of the direct cost center in which he works, and the general overhead rate of the entire Navy Industrial Fund activity. The consequences of these three costs are different when the activity's level of business changes. Direct costs tend to vary directly with the level of business. Overhead costs do not. The total mount of fixed overhead remains relatively constant regardless of changes in business volume, yet the fixed overhead per unit of output (the direct labor hour) varies with the business volume. Semi-variable overhead costs vary but not in proportion to volume of business. The obvious implication of these consequences is that careful planning of the volume of business over a budget cycle is necessary to properly control overhead costs [Ref. 15].

Another item of cost similar to overhead which is attached to direct labor costs is the Acceleration of Labor (commonly called just "Acceleration"). Acceleration of labor is the cost added to civilian salaries to cover the cost of leave and fringe benefits. The leave costs include annual leaves, holiday leaves, sick leaves, military leaves and administrative leaves. The fringe benefits include the employer's

contribution to life insurance, medical insurance, retirement and social security. The labor acceleration rate averages about 33% of each worker's regular pay. The acceleration rate differs from overhead in that it is a percentage applied to both direct and indirect (overhead) labor dollars. Overhead rates, it will be recalled, are dollar rates attached to direct labor hours.

Accurate cost accounting is essential to the proper operation of the NIF because the NIF objective of operating at a breakeven level makes it necessary to guard against significant profit as well as significant losses. In order to change breakeven prices for its work, the activity must be able to determine within reasonable limits how much it costs to perform that work. A Public Works Center is considered to have operated at a breakeven level if, at the end of the fiscal year, the retained earnings account is less than $\pm$ 1% of the revenue. For shipyards, it is $\pm$ 0.5%.

There are some costs for which a Navy Industrial Fund activity does not have to charge the customer. These costs are:

1. Unutilized and Underutilized Capacity - The NAVCOMPT Manual specifies that costs applicable to maintaining unutilized and underutilized capacity will be budgeted for and funded as a mobilization reserve item by the Defense agencies and military departments having management responsibility for industrial fund activity. In practice, the expenses of maintaining underutilized plant and equipment are usually passed

on to the customer through the overhead rate. This is because costs associated with underutilized capacity are difficult to define, identify, and quantify [Refs. 5, 16].

2. Military Labor - The pay of military personnel is funded by the military personnel - Army, Navy, Air Force, or Marine Corps appropriation. Non-federal customers are compelled to pay a "statistical" charge which covers both military labor and depreciation [Ref. 5].

3. Depreciation - Depreciation is computed on plant and equipment, but is only charged to non-federal customers [Ref. 5].

4. Disability Compensation Expense - This expense is paid for by the Bureau of Employee Compensation, Department of Labor [Ref. 16].

5. Rental of Buildings and Ground Space - "Space occupied by NIF activities, but which are under the control of other commands, activities or Federal agencies are not funded by NIF." [Ref. 16]

6. Taxes - No taxes are applied to the sale of NIF products or services to either Federal Government or non-Federal Government customers.

B. BUDGETING

Under the Navy Industrial Fund concept, cost accounting is a very important "tool of NIF activity management," serving as a means of planning and control. It provides the activity management with detailed cost of products and services which should enable managers to formulate intelligent production

plans and schedules of service. The use of cost accounting allows detailed statements to be furnished to the NIF activity management at short intervals comparing and analyzing actual costs of materials, labor, and overhead with estimates and standards prepared in advance. This enables the activity management to exercise effective control over the operations of cost centers and departments. "The combination of standard cost system combined with budgets provides the foundation for the achievement of these multiple tasks and goals." [Ref. 12] Indeed, "a carefully prepared budget is the best possible standard against which to compare actual performance." [Ref. 15]

Careful budgeting has the advantages of: (1) requiring management to make an early study of its problems and encouraging the habit of careful study before making decisions; (2) providing a means whereby basic policies are periodically examined, restated, and established as guidelines for the entire activity; (3) helping to direct capital and effort into the most important channels; (4) aiding in the coordination and correlation of all efforts, for "no management control activity reveals weaknesses in organization so quickly as the orderly procedure necessary for systematic budgeting." [Ref. 12]

Despite the unquestionable advantages of budgeting, there are certain limitations and pitfalls:

1. Budgeting is not an exact science. It represents a "best guess" about the future.
2. In order to succeed, a budgeting program requires the full cooperation of all management levels.

3. A budget plan is a tool, not a law. Its purpose is to provide detailed information that allows management to operate with confidence and vision toward the success of activity objectives. [Ref. 12]

There are two types of Navy Industrial Fund budgets - the annual A-11 budget and the operating budget. Office of Management and Budget Circular No. A-11 requires that an annual budget be prepared and submitted for all NIF activities. Each year when the Comptroller of the Navy receives his Circular No. A-11 instructions, he issues his budget call to the management bureaus, functional commands, and offices. The Comptroller is responsible for coordinating and consolidating the estimates. He promulgates the format content and due dates for the submission of budget data. The data are required for the past year and budget year.

The narrative data, statements and schedules which make up the annual A-11 budget submission, may be prepared by the NIF activity or its management agency.

No matter who prepares them, NIF A-11 budgets are combined into one budget per activity group and then into one overall budget.

Before being submitted to NAVCOMPT, the A-11 budgets are usually reviewed jointly by administering activities and NAVCOMPT staff. This is done to insure compliance with directives.

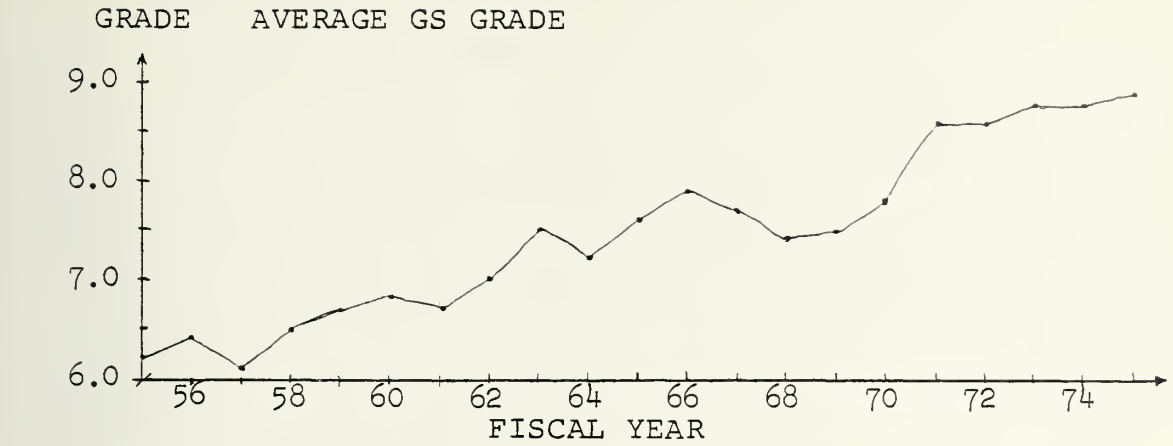
The Comptroller of the Navy then holds preliminary hearings on the A-11 budgets. These hearings cover costs and sales forecasts, including relationship to customers' budget programs;

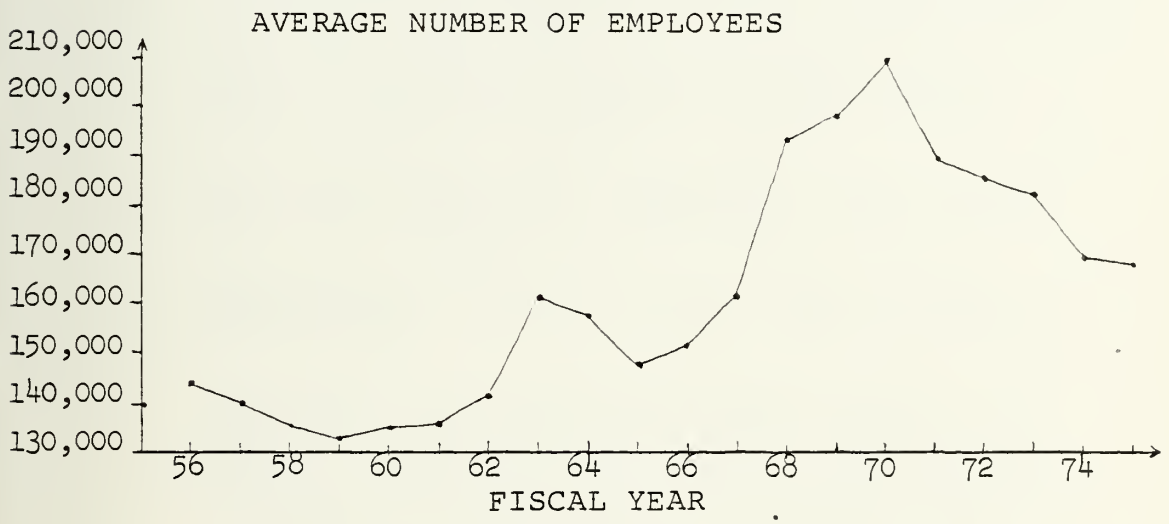
working capital requirements; management and budgetary review and controls; and financial and accounting policies.

Joint hearings are then held by the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD). "Markups," or changes to the A-11 budget, generally occur at these hearings. These changes usually relate to the proposed level of NIF operations, because proposed limitations on appropriations at this level will affect NIF activity levels. Although decisions in this area are above the level of NIF management, it does rather belie the claim that NIFs are free from the problems of obtaining appropriations.

After acceptance by OMB, the NIF budgets are printed in the President's budget. The published budget contains the following statements and schedules: a balance sheet (Statement of Financial Condition), an income statement (Statement of Revenue and Expense), a Program and Financial Statement, an Object Classification Statement, and a Personnel Summary Statement [Ref. 17].

The Industrial Fund section of the President's 1977 budget shows that NIF is the largest, both in assets and revenues, of the five industrial funds. The 1977 budget shows the NIF to have assets of over 1.186 billion dollars and a projected revenue of over 5.99 billion dollars. The Personnel Summary Statement is interesting in that it shows the average GS grade is 8.80 which is almost one full grader higher than any of the other industrial funds [Ref. 1]. Figure 3 shows the NIF average GS grade for each fiscal year from 1955 through 1975. Also shown in Figure 3 are the average number of employees and


GRADE
AVERAGE GS GRADE
9.0
8.0
7.0
6.0
56
58
60
62
64
66
68
70
72
74
FISCAL YEAR


AVERAGE NUMBER OF EMPLOYEES
210,000
200,000
190,000
180,000
170,000
160,000
150,000
140,000
130,000
56
58
60
62
64
66
68
70
72
74
FISCAL YEAR

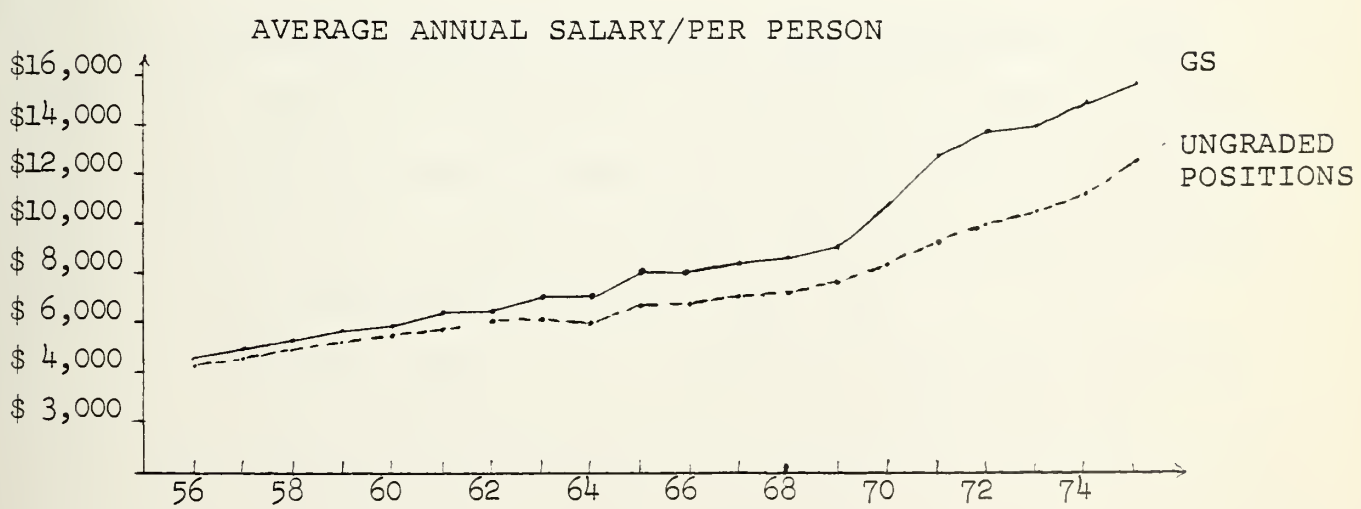

AVERAGE ANNUAL SALARY/PER PERSON
$16,000
$14,000
$12,000
$10,000
$ 8,000
$ 6,000
$ 4,000
$ 3,000
56
58
60
62
64
66
68
70
72
74
GS
UNGRADED
POSITIONS

FIGURE 3

the average annual salary for GS and ungraded positions in the NIF. The rise in average GS grade over the history of the fund, coupled with the fact that salaries and wages represent 50% of the costs of goods and services produced [Ref. 1], would seem to indicate that this is an area needing attention.

The second type of budget is the operating budget. Operating budgets are prepared by each NIF activity. The purposes of these budgets are to:

1. provide local management with a forecast of operating costs and financial condition;

2. serve as operating guides to lower level management and department heads;

3. serve as a basis for financial control over activities operating under NIF;

4. provide the means to measure and evaluate performance;

5. encourage analysis of variances and periodic reports on the results of such analysis. Such a variance analysis is very important in that it reflects the failure of management to achieve planned goals, its ability to better them, or its inability to set realistic goals. [Ref. 16]

According to the Navy Industrial Fund Management Guides, "The most important by-product of budgeting is that it forces all those who participate--from lower level to the commanding officer--to think in terms of future costs and future revenues. This is the essence of planning." [Ref. 16]

The operating budget can be viewed as the primary "building block" for effective cost control by local management. It presents a cost and financial plan presented on both a fiscal year and a quarterly basis, based upon the anticipated level

of operation during that period. Over the course of the budgeted period the budget is compared with actual data to measure performance. Any significant differences (budget "variances") are analyzed and corrective action is taken if necessary.

NIF activity handbooks provide the information as to which specific statements and exhibits are to be included in the operating budget. In general though, a financial and operating budget will consist of the following components:

1. Justification. This consists of an analysis in narrative form of all the factors considered in formulating the financial and operating budget. The justification explains, evaluates, and interprets major items of interest from a financial management viewpoint. The NIF Handbook for Naval Shipyards contains a comprehensive list of items which may require comments in the justification:

a. basic expectations;

b. significant changes in prospective workloads,

c. direct labor capacity of plants,

d. provision of non-recurring maintenance and other non-routine accruals,

e. significant variances from past experiences and the reasons therefor,

f. overhead rates, including changes from previous periods and reasons therefor,

g. ratios of direct material estimates to direct labor estimates, including comparisons to past experience,

h. cash requirements,

i. employment levels;

j. force distribution, including productive and on-board ratios,

k. significant adjustments made or required with respect to balance sheet accounts,

l. significant amounts of over-applied or under-applied overhead costs and/or revisions in overhead ratios for each cost center,

m. changes in operating plans, policies, methods, procedures, and conditions which have affected, or will affect the financial condition of the activity, fixed prices or cost reimbursables, or operating income or cost,

n. changes in billing or pricing policy,

o. significant changes or anticipated changes in level of operations and the effect of such changes on application of overhead costs and idle plant capacity,

p. adverse financial or costs trends, and

q. important matters of interest to the activity or the Comptroller of the Navy, which, in the opinion of the activity, should be presented.

2. Production Budget and Related Overhead Expense Budgets.

> These show the estimated direct cost of the activity, classified by type of cost, responsibility, and type of service or product. If performance standards are available, they are used in formulating the Production Budget and related Overhead Expense Budgets. These operating budget components, in turn, provide a basis for establishing predetermined rates or prices for services and products furnished to customers. [Ref. 16]

3. Projected Statement of Financial Condition. This is the projected "Balance Sheet," showing all the assets, liabilities, and capital at one future point in time.

4. Projected Statement of Income and Expense. This is the "Income Statement," projecting all revenue, costs, and expenses incurred over the budget period.

5. Summaries.

> These contain various projected expenses and cost distributions of specific interest to the managing command as well as a cash budget (analogous to a cash flow projection in the private sector) which projects the flow of cash during the budget period. [Ref. 16]

Those members of the NIF activity having key responsibilities in preparation of the operating budget are the commanding officer, comptroller, and the cost center managers. The commanding officer establishes the policy and guidelines for budget formulation and execution. He is responsible for the final approval of the activity's budget prior to submission to the management agency.

The comptroller of an activity is responsible for coordinating all budget functions of the activity. This includes:

1. Promulgation of commanding officer's policy and guidance.
2. Computing all overhead rates and the acceleration rate.
3. Advice and guidance to all management levels during budget formulation.
4. Preparation of total operating budgets for final approval.
5. Continuous review and analysis of progress during the budget period.
6. Participation in the determination of manpower requirements.
7. Advising heads of departments, offices, and cost centers of any budget revisions and allowances to the approved budget. [Ref. 13]

The cost center manager is responsible for the preparation of the cost center budget. In order to prepare a realistic budget the cost center manager must have a thorough understanding of the objectives of a budget and of the techniques of estimating direct and indirect costs. He must also have detailed knowledge of the functions, capabilities, and limitations of his cost center and its programs [Ref. 14].

## C. FINANCING OF OPERATIONS

The costs of performing the work or services necessary to fulfill the terms of reimbursable orders accepted by an industrial fund activity will be financed by the NIF, which will in turn be reimbursed from the funds cited in the orders. The NIF activity must have an accepted reimbursable order before it can perform any work or services for the customer. The only exception to this rule would be the situation where it would be necessary to commence work of an "emergency nature" prior to the receipt of an order. In such a case, the activity commanding officer may issue a Commander's Order. In order to prevent obvious potential abuses, the conditions under which such an order may be used are restrictive. The following conditions must be established:

1. The NIF activity must have written assurance or equivalent documentation that an order will be issued promptly;

2. A bona fide emergency must exist, arising from unforeseen and urgent requirements;

3. The Commander's Order may not authorize expenditures in excess of $250,000;

4. The Commander's Order remains in force for not more than 30 days from date of issuance;

5. The commanding officer of the NIF activity must sign the order.

D. CAPITAL EQUIPMENT RECOVERY

Costs of plant and equipment, "which have a unit cost of less than $1,000 or a normal life in use of less than one year will be financed from the Industrial Fund for recovering part of overhead costs. Costs of acquisitions of tools and equipment which have a unit value of $1,000 or more will be financed from appropriated funds." [Ref. 5]

E. REPAIRS AND MAINTENANCE

The maintenance and repairs of plant, equipment, and real property of the industrial fund activity are financed from the NIF. Such costs are usually classified as overhead, except by process shops, where they are treated as indirect costs.

F. PROPERTY DAMAGE

The cost of repairs, replacement and/or restoration of real plant facilities damaged by catastrophes or acts of God are funded somewhat differently. The Navy Comptroller Manual states that:

1. If the cost of the repair/restoration is in excess of $50,000 to replace the damaged facility, the project will be funded by appropriated funds;

2. If the cost of the repair/restoration is $50,000 or less it will be financed from the industrial fund for a recovery as a part of operating costs;

3. Costs relating to the prevention of damage by an impending catastrophe will be charged directly to general expense and will not be considered as a cost incident to extensive damage resulting from catastrophes or acts of God. [Ref. 5]

G. REAL PROPERTY ADDITIONS

Alterations to real property facilities of a NIF are generally financed from appropriated funds. Projects for alterations may be financed from the NIF and will be classified as overhead costs if:

1. The project cost is less than $50,000;

2. The project isn't subdivided for purposes of complying with the $50,000 limitation;

3. Such a project is "necessary to maintain or improve the operating efficiency of the industrial-commercial type activity and DOES NOT ADD MATERIALLY TO THE VALUE OR THE USEFUL LIFE OF THE REAL PROPERTY FACILITIES OF THAT ACTIVITY." (Italics added) [Ref. 5]

Costs of equipment installation performed by the activity are classified as NIF overhead costs whenever it is practicable to segregate such costs.

Severance pay costs financed from the NIF will be reimbursed by that activity's management agency.

H. BILLING AND COLLECTION PROCESS

Compared to private industry, collection is a relatively simple process at Navy Industrial activities. In most cases, the NIF activity bills are on a Standard Form 1080, and payment is made by a disbursing officer. The NIF manager can control

the timeliness of bill preparation, and there is little risk of bad debts or old outstanding bills. The one area of direct management concern is the time span of the billing and collection cycle. The longer the billing and collection cycle takes, the greater is the amount of capital required at the NIF. The NIF operates on a thin margin of cash, so keeping the billing and collection cycle as short as possible is desirable.

The Navy Industrial Fund activity can employ six methods of billing:

1. collection vouchers for advances received;
2. billing upon commencement of service (Military Sealift Command only);
3. monthly accrued costs for services rendered;
4. progress payments taken;
5. partial billings based on units completed;
6. billing upon completion of work or service.

The frequency of billing depends upon:

1. who the customer is;
2. the dollar value of the order and the length of time necessary to complete the work.

As a matter of general billing policy, "billings will be rendered at least monthly, provided the amount billed exceeds $100, excluding orders where advances have been taken or where it is a final billing." [Ref. 5]

For customers whose orders involve construction and conversion, manufacture and assembly, overhauls, repair and renovation, alterations and modification, additions and improvement to plant, or other products and services, a progress payment

procedure is required if the order costs more than $25,000 and takes more than 30 days to complete. The Navy Publications and Printing Office must bill upon completion of the work or services no matter what the size of the order. The Military Sealift Command must bill for transportation upon commencement of service and must bill accrued costs for the operation of project ships. All other orders costing less than $25,000 and taking less than 30 days to complete will be billed upon completion of the work.

For non-Department of Defense customers (other than the Red Cross) a surcharge covering the unfunded costs incurred will be billed. Also, payments in advance are usually required. The NIF activity commanding officer has the authority to waive this requirement, however, if in his opinion there is sufficient justification to do so. In such a case the billing should be at least monthly. Non-Department of Defense customers represent less than one percent of NIF business.

Progress payment billings are in practice tied to key NIF activity events, such as paydays. The Mare Island Naval Shipyard, for example, has to meet a bi-weekly payroll of seven million dollars. Accordingly, every two weeks they bill in excess of seven million dollars in order to meet the payroll plus fringe benefit costs, plus all the materials received [Ref. 18].

If the customer is a component of the Department of Defense, the NIF activity reimbursement is accomplished by means of cross-disbursement procedures. The customer is billed by

means of a Standard Form 1080, which is a voucher for making an adjustment between appropriations [Ref. 19].

The NIF activity has the authority to submit the Standard Form 1080 directly to the nearest Navy Regional Finance Center (NRFC). The NRFC automatically debits and credits the accounts of the NIF activity and the customer. It is not necessary that the Standard Form 1080 be certified by the customer before the NRFC effects "payment" to the NIF activity [Ref. 19]. At Navy Industrial Fund activities the preparing officer has the authority to sign the "Certificate of Office Billed" on all Standard Forms 1080 billing DOD customers, [Refs. 20, 21] provided the billing does not exceed the amount of the authorization document. This process takes at most two working days. Mare Island Naval Shipyard, for example, has a NRFC detachment located at the shipyard. There the process takes only one working day or less. Nonindustrial activities send their Standard Forms 1080 to the NRFC, who must send the form to the customer to be certified. When the customer returns the certified form, the NRFC effects payment. This process takes about five working days on the average.[1] Being able to certify its own 1080s clearly results in a billing advantage to NIF activities.

Since over 99 percent of NIF receipts and reimbursements are from federal funds [Ref. 1], long lead times between billing and payment need not be a problem.

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[1]Source: Navy Regional Finance Center Office, Mare Island Naval Shipyard.

## I. FINANCIAL REPORTS

Pursuant to Section 2208, Chapter 131 of Title 10, U. S. Code, the Department of Defense requires submission of periodic financial and operating statements. Reference 14 amplifies the DOD requirements. The format and frequency of the reports depends upon who wants them - the activity commanding officer, the management agency, the Comptroller of the Navy, or the Department of Defense. "Generally, the statements are prepared monthly for individual activity use and quarterly for activity group managers and the Comptroller of the Navy." [Ref. 19]

Each activity group may have a somewhat different format and content to its financial reports, but in general all include:

1. a statement of financial condition (the Balance Sheet);
2. a statement of revenue and expenses (the Income Statement);
3. supportive exhibits and schedules;
4. review and analysis comments. [Ref. 22]

## V. NAVY INDUSTRIAL FUND OPERATION

This chapter will discuss the operation of the Navy Industrial Fund. Since its inception in 1949, the number of NIF activities increased to a maximum of 99 in Fiscal Year 1972. At the present time there are 84 NIF activities. Except for the Fiscal Years 1964 and 1965, revenue has steadily increased [Ref. 6]. The government equity has exhibited quite marked changes from the $480,000,000 original working capital. Table 3 lists the number of activities, revenue and government equity of the Navy Industrial Fund from its inception to the present [Ref. 6].

As indicated in Table 3, the greatest amount of government equity reduction took place between Fiscal Year 1955 and Fiscal Year 1970. From the period 1956 through 1968, over 294 million was transferred out of the fund (including 192 million to Military Personnel, Navy). During the same time period, the number of NIF activities and the revenue of the NIF was increasing, generating a need for more working capital rather than less. The end result was a serious cash flow problem that peaked in Fiscal Year 1964 when 90 million dollars was transferred to the Navy's Military Personnel appropriation. The cash flow problem resulted in a change of NIF operating procedures, in that the NIF went from a system of progress payments to prepayments.

Under the progress payment system, the customer was billed for the product or service by the industrial fund activity as

TABLE 3

| Fiscal Year | Number of Activities | Government Equity (Millions) | Revenue (Millions) |
|---|---|---|---|
| 1950 | 4 | 480 | Not available |
| 1951 | 4 | 155 | .026 |
| 1952 | 4 | 212 | 665. |
| 1953 | 6 | 318 | 833. |
| 1954 | 34 | 410 | 859. |
| 1955 | 42 | 487 | 1,116. |
| 1956 | 48 | 447 | 1,323. |
| 1957 | 49 | 385 | 1,438. |
| 1958 | 52 | 306 | 1,475. |
| 1959 | 53 | 290 | 1,522. |
| 1960 | 58 | 291 | 1,590. |
| 1961 | 62 | 284 | 1,629. |
| 1962 | 62 | 284 | 1,889. |
| 1963 | 67 | 256 | 2,154. |
| 1964 | 67 | 173 | 2,146. |
| 1965 | 65 | 172 | 2,073. |
| 1966 | 65 | 150 | 2,585. |
| 1967 | 66 [Ref. 5] | 150 | 3,132. |
| 1968 | 81 | 150 | 3,704. |
| 1969 | 80 [Ref. 5] | 155 | 4,375. |
| 1970 | 98 | 110 | 4,683. |
| 1971 | 99 | 288 | 4,232. |
| 1972 | 99 | 342 | 5,264. |
| 1973 | Not available | 284 | 4,888. |
| 1974 | Not available | 290 | 4,857. |
| 1975 | Not available | 290 | 5,209. |
| 1976 | 84 | 323 (Est.) | 5,915.(Est.) |
| Transition Quarter | Not available | 326 (Est.) | 1,389.(Est.) |
| 1977 | Not available | 320 | 5,999.(Est.) |

Source: The Budget of the United States Government, U. S. Government Printing Office, Washington, D. C., for the Fiscal Years 1952-1977.

work was completed. Under the new prepayment system the customer paid in advance for any work or services. This "cash in advance" method of doing business quickly solved the cash flow problem, and provided the fund with more working capital than it had since its inception. The cash position of the fund ballooned to more than one billion dollars shortly after the prepayment system was adopted [Ref. 23].

The prepayment system solved the cash flow problem, but resulted in two inefficient management practices that were to cause further problems for the fund.

The first inefficient management practice was to increase inventories more than was necessary. From 30 June 1963 to 31 December 1967, NIF activities increased their raw material inventories from $109,000,000 to $223,000,000, over a 100% increase in a four and one-half year period [Ref. 22]. Inventory turnover dropped from 17.7 days in FY 64 to 14.7 days in FY 68.

The second inefficient management practice was that the NIF activities became careless about their billings. Having a large amount of working capital available led activities to not expedite their customer billings. In some cases it took activities up to 28 days to bill and collect from the customer. It was explained in Chapter IV that cross-disbursement procedures enable the activity to collect from the customer in a relatively short time. Because they had more than enough working capital, the NIF activities let management in this area slip [Ref. 24].

As a result of these two practices, the Navy Industrial Fund returned to progress payment procedures on 31 May 1968. The effect of going back to progress payments, however, meant that working capital was reduced again. In order to avoid putting the fund in the same situation as 1964, $171,000,000 of temporary financing had to be obtained from the Department of Defense. The money was obtained with the specific understanding that the above two inefficient management practices would be corrected [Ref. 19].

Another end result was that the Comptroller of the Navy set standards for the asset accounts. The standards apply to each industrial fund activity. They are:

1. Quick assets should not exceed quick liabilities;

2. The net amount of unbilled work-in-process should not exceed 11 working days of average daily costs;

3. The maximum amount of accounts receivable should not exceed 4 working days of average daily costs;

4. The amount of unbilled direct material inventory should not exceed 10 percent of gross direct material inventory;

5. Shop stores inventories must be held at 31 March 1969 levels. [Ref. 19]

During interviews with comptroller staff members of a NIF shipyard and public works center, the author got the distinct impression that very close attention is now being paid to inventory and billing control.

At Navy Industrial Fund shipyard activities, a management deficiency occurred with regard to budgeting prior to FY 1974. Except for the Pearl Harbor Shipyard, annual budgets were not

prepared by the shipyards. Only quarterly budgets were prepared. Headquarters (NAVSEA) provided the A-11 submission. This was a poor management practice in that the shipyards felt no compulsion to live within a budget they did not prepare. This was corrected as of Fiscal Year 1974 when all shipyards were required to submit annual budgets [Ref. 18].

Prior to Fiscal Year 1976, Navy Industrial Fund activities were allowed to adjust the overhead rates, utility rates, etc., charged to the customer on a quarterly basis. This was beneficial to the activity in that it could adjust its costs four times a year in order to insure it operated on a "breakeven" basis. This was not very beneficial to the customer. (The customer, it is recalled, obtains his funds in the form of appropriations from the Congress. The customer must prepare and submit his budgets almost two years in advance.) Quarterly increases in NIF activity charges to the customer then, put the customer in the very emotional position of having to go back to Congress to request more money [Ref. 18]. It also encouraged "padding" of their budgets.

This management deficiency is in the process of being corrected by means of a rate stabilization program which is being implemented in Fiscal Years 1976 and 1977 [Ref. 1]. Under this program, the NIF activities will have to prepare budgets as far in advance as the customers do. The rates for products and services charged by the NIF activities, as projected in the industrial fund estimates, will be implicit in the workload plans and funding requirments projected by the

customer in his appropriation estimates. The rates estimated will be the rates the customer pays.

At shipyards the rate stabilized is the "manday" rate. In addition to a fiscal year stabilized rate the shipyard must provide an "overhaul" stabilized rate that must be set for the duration of a ship overhaul. At Mare Island Naval Shipyard, for example, nuclear submarine overhauls can last from 12 to 18 months. The shipyard must provide the customer with a fixed manday rate that will be in effect for the duration of the overhaul [Refs. 25, 26].

Another area of improvement regards reports. In the past, reports from the activities were submitted to the administering offices anywhere from two weeks to two months from the last day of the period covered. Information needed by the Comptroller's office was then grouped together by the administering office and sent there. Summary information was then sent back to the activites.

A new method is currently in the implementation stage. Under their new method report information is sent directly from the activity to the Comptroller's office. The reports must be sent within 17 days after the last day of the period covered by the report. The report information is sent in on autodin cards. The administering offices will also have access to the information at the same time the Comptroller's office does. This system should give the activities a greater degree of visibility at the higher financial decision making levels. It should also enable the activities to receive summary reports more quickly [Ref. 27].

At the NIF activities the author visited, rate stabilization was viewed as being good for the customer but a potential headache for the NIF activity. It was felt that having to set a fixed rate for the entire budget year was going to make it more difficult for the activity to operate at a breakeven basis. The NIF activities, understandably, felt more comfortable about coping with the uncertainties of pay raises, inflation and workload with the use of quarterly adjustments as previously allowed. The activities predicted that it would take two or three years to become proficient at this new method.

## VI. DISCUSSION

This chapter will attempt to evaluate the Navy Industrial Fund.

The strengths of the NIF concept and operation will be discussed first, followed by a consideration of continuing problems. Throughout the discussion questions and topics worthy of further examination will be included.

### A. STRENGTHS

1. Freedom from Appropriations - The freedom from the restrictions of appropriation fundings is felt to be an advantage of the NIF concept. It is realized, however, that this is a relative freedom. The system is still driven by appropriations, so NIF activities are not really free from them -- just once removed. Having the industrial fund operate directly under appropriations would be counterproductive to the activity's objective of operating efficiently and economically because:

a. Appropriations are not easily obtained. Receiving appropriation amounts quite a bit less than were requested is not unknown. This would likely cause the activity to "pad" its budget in order to anticipate any costs, which in turn reduces the value of the budget as a management tool.

b. The activity would most likely spend all of its appropriated funds whether or not they were really needed. There are no rewards for returning monies to the Treasury.

c. There is often a sizable time lag between when the appropriations budget becomes effective and when it is approved. This means the activity would have to limit its operations, incurring costs at a rate not greater than the previous year, until the budget is approved. This is inefficient also.

2. Cost Effective for the Navy - Economies of size and the ability to buy "only what you need" instead of having to maintain a "fixed level of effort" should make NIF activities cost effective for DOD customers.

3. Cost Effectiveness in Comparison to Private Sources - Because of some costs not funded by the NIF, the customer should, in theory, get goods and services from a NIF activity at a cost lower than comparable civilian activities. It will be recalled that NIF activities do not charge Department of Defense customers for the costs of depreciation, military labor, unutilized capacity, or taxes. An interesting comparison not made in this thesis would be the prices of NIF activities against comparable civilian activities.

4. Encourages Close Coordination and Mutual Planning - The cost accounting concept does require close coordination and mutual planning between industrial fund activities and their customers. The customers have an incentive to plan as carefully as possible with the NIF activity because they know the adverse effects of higher costs will occur if they don't plan and coordinate as closely as possible.

5. Comparative Visibility - Each management agency compares the operations and performance of the activities under

its control. This comparative visibility encourages competition between the activities. It also identifies the activity whose performance is superior or marginal. The management agency provides this information to each activity which can then see how it stands in relation to its counterparts.

6. Fewer Free Services - The contractual relationship created between the customer and the NIF activity is supposed to force the producer to accurately define all tasks to be accomplished and to accurately forecast all costs associated with these tasks. The customer uses these costs to justify the expenditure of funds in his budget. Placing the expenditure justification in the customer's budget rather than in the supplier's eliminates the "free" concept of goods and services. The customer may not see this as an advantage. He might prefer to get as many "free" services as he can. While having to budget for, control, and account for the cost of all goods and services ordered might be a disadvantage to the customer, it can be an advantage to the higher echelons of the Navy who are involved with obtaining appropriations from Congress. It makes their budget requests to Congress more accurate which in theory should increase their chances of obtaining the funds they request.

A question of interest would be: "How does Congress view NIF activities? Do they trust NIF activities' cost figures?

B. CONTINUING PROBLEMS

1. Captive Customer - The advantages of the buyer-seller relationship between the NIF activities and their customers

have been overrated in that the customer activity normally has no alternate source for the services. This relationship was supposed to have an impact on efficiency, but it can't make this impact unless the buyer can choose from two or more sellers. In practice, most NIF customers can only choose between buying and not buying. The customer can, however, still act as a critic. He can question costs and compare them with costs at similar civilian activities. Also, the NIF activities do not compete with each other for customer's business.

2. Labor Problems - In theory the NIF is supposed to provide to managers the financial authority and flexibility necessary to procure and use manpower and other resources more effectively and to coordinate labor force and inventories with workload generated. As an example, Public Works Centers utilize temporary employees to meet fluctuations in workload demands. In practice, other constraints hamper this authority and flexibility. Labor represents 50 percent of the costs of goods and services of the NIF. Constraints imposed by higher authorities concerning hiring and firing policies coupled with the need to sustain a broad base of skill during periods of low operation tends to hamper the NIF activity manager's flexibility. Indeed, direct labor in practice tends to assume the characteristics of fixed costs. The subject of labor problems at NIF activities could be a thesis topic in itself.

3. Realistic Cost Standards Not Yet Attained - The specific objective to establish and use realistic costs

standards has not yet been accomplished. The NIF activities appear to be interested more in making sure their pricing policy enables them to operate at a breakeven level rather than setting cost goals to reduce their costs of goods and services produced. Breakeven budgeting may be efficient, but results in reduced emphasis on utilization of cost standards.

4. Under and Unutilized Capacity - The major continuing problem is underutilized and unutilized capacity, which must be maintained in order to provide needed capability to support wartime or contingency situations. In this area it is not possible to equate civilian business practice to industrial fund practice, since good business would dictate that all under- or unutilized capacity be eliminated.

DOD Directive 7410.4 provides that the costs of an industrial activity's underutilized or unutilized capacity should be charged to the activity's management agency. Despite the above provision much under- and unutilized capacity is still being absorbed in the NIF overhead. Until this problem is resolved, the customer will continue paying more than his fair share of costs, and the NIF will not reach fully its goal of efficiency and economy.

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